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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
FEELY, MICHAEL J	

ART UNIT	PAPER NUMBER
1796	

NOTIFICATION DATE	DELIVERY MODE
03/04/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/594,594	USUI ET AL.	
	Examiner	Art Unit	
	Michael J. Feely	1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 May 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☒ Claim(s) *5-10* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060928,20081024*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Pending Claims

Claims 1-18 are pending

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

2. Claims 5-10 are objected to because of the following informalities: claims 5, 8, and 9 feature the phrase "selected from the group consisting of" followed by a single option *(not a group)*. Accordingly, this Markush language should be removed. Appropriate correction is required.

Claim Rejections - 35 USC § 112, 2nd paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 5-8 and 10-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 5, (and dependent claims 6-8 and 10) it is unclear if this claim is directed to an epoxy resin composition or a mater batch type hardener. Claims 6-8 and 10 are rejected because they are dependent from claim 5.

Regarding claims 11-18, claims 11-18 recite the limitation "the epoxy resin composition according to claim 4". There is insufficient antecedent basis for this limitation in the claims because claim 4 is drawn to a hardener. Accordingly, it appears that claims 11-18 should be dependent from claim 9.

Claim Rejections - 35 USC § 112, 1st paragraph

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1, 2, and 4-18 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for:

an amine hardener (C) comprising an amine adduct (A), *obtained by a reaction between an epoxy resin (a1) and an amine compound (b1),* and a low molecular weight amine compound (B), does not reasonably provide enablement for:

an amine hardener (C) comprising *any* amine adduct (A) and a low molecular weight amine compound (B). The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

The amine hardener (C) of the instant invention features an amine adduct (A) having a *molecular weight distribution (Mw/Mn)* of 3 or lower. Molecular weight distribution, along with weight average molecular weight and number average molecular weight *(used to determine*

molecular weight distribution), are characteristics of polymeric materials. Accordingly, it appears that the amine adduct (A) is a polymeric material.

With that established, the specification discloses that: "the amine adduct (A) is a compound having an amino group obtainable by a reaction between at least one kind of a compound selected from the group consisting of a carboxylic acid compound, a sulfonic acid compound, an isocyanate compound, a urea compound and the epoxy resin (a1), and the amine compound (b1)," *(see paragraph 0009 of the specification or paragraph 0024 of the pre-publication)*. The specification then goes on to describe:

- suitable carboxylic acid compounds *(see paragraph 0009 of the specification or paragraph 0026 of the pre-publication)*,
- suitable sulfonic acid compounds *(see paragraph 0009 of the specification or paragraph 0027 of the pre-publication)*,
- suitable isocyanate compounds *(see paragraph 0009 of the specification or paragraph 0028 of the pre-publication)*,
- suitable urea compounds *(see paragraph 0009 of the specification or paragraph 0029 of the pre-publication)*,
- suitable epoxy resins *(see paragraphs 0010-0011 of the specification or paragraphs 0030-0036 of the pre-publication),* and
- suitable amine compounds *(see paragraphs 0012-0013 of the specification or paragraphs 0037-0041)*.

Of all these adduct reactants, the only materials disclosed as polymeric materials are the epoxy resins. In light of this, the instant specification fails to adequately support, or even

suggest, embodiments of the instant invention wherein any of the carboxylic acid compounds, sulfonic acid compounds, isocyanate compounds, or urea compounds yield a polymeric material when reacted with amine compound (b1). Accordingly, it appears that the specification only enables the instantly claimed polymeric amine adduct (A) when it is *obtained by a reaction between an epoxy resin (a1) and an amine compound (b1).*

Double Patenting

7. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

8. Claims 1-18 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over the combined limitations of claims 1-4, 20-42, 44, 45, and 47 of copending Application No. 11/991,785 (US 2009/0261298). Although the conflicting claims are not identical, they are not patentably distinct from each other because: the

combined limitations of the copending claims disclose all the limitations set forth in the instant claims. The following table shows how the copending claims correspond to the instant claims:

Instant Claim	***Copending Claim(s)***
1	1-4
2	25-26
3	20-22
4	23-24
5	1-4, 29
6	32
7	30-31
8	27-28
9	33
10	34
11	35
12	36
13	37
14	44-45
15	39, 42
16	38, 41
17	47
18	40-42

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

9. Aside from the provisional obviousness-type double patenting rejection, claim 3 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: The prior art fails to teach or suggest:

An amine hardener (C) for an epoxy resin comprising: an amine adduct (A) and a low molecular weight amine compound (B) as major components;

wherein the amine adduct (A) is obtained by a reaction between an epoxy resin (a1) and an amine compound (b1) and has a molecular weight distribution, which is defined by the ratio of the weight average molecular weight and the number average molecular weight, of 3 or lower; and

wherein the content of the low molecular weight amine compound (B) is 0.001 to 1 part by mass, based on 100 parts by mass of the amine adduct (A).

Gawin (US Pat. No. 4,783,506), Bard (US Pat. No. 4,680,076), and Jabloner et al. (US Pat. No. 4,656,207) disclose a similar adduct *(see: column 3, line 57 through column 5, line 65; column 3, line 53 through column 5, line 18; column 3, line 31 through column 5, line 4)* used in concert with an amine hardener *(see: column 5, line 66 through column 6, line 41 & Table A; column 5, lines 19-51 & Table 1; column 5, lines 5-20 & Table A)*. These amine adducts feature the instantly claimed molecular weight distribution; however, there are not formed by a reaction between an *epoxy resin* and an amine compound. Furthermore, the amount of amine hardener used in the prior art *(corresponding to B)* is higher than the instantly claimed amount.

Suggested Claim Language

11. The following is suggested claim language to move the instant claims towards allowance. The proposed claim language accounts for: an amine hardener (C); a microcapsule type hardener (D); a master batch type hardener (F), containing (C); a mater batch type hardener (F), containing (D); and an epoxy resin composition featuring any one of these hardeners.

1. (Proposed Amendment) An amine hardener (C) for an epoxy resin comprising: an amine adduct (A) and a low molecular weight amine compound (B) as major components;

wherein the amine adduct (A) is obtained by a reaction between an epoxy resin (a1) and an amine compound (b1) and has a molecular weight distribution, which is defined by the ratio of the weight average molecular weight and the number average molecular weight, of 3 or lower; and

wherein the content of the low molecular weight amine compound (B) is 0.001 to 1 part by mass, based on 100 parts by mass of the amine adduct (A).

2. (Original)

3. (Proposed cancellation)

4. (Previously presented)

5. (Proposed Amendment) A mater batch type hardener (F) for an epoxy resin comprising: the microcapsule type hardener (D) according to claim 19, an epoxy resin (E), and a soluble epoxy resin (G);

wherein the highly soluble epoxy resin (G): has a solubility parameter of 8.900 to 12.00; has a molecular weight between crosslinked points after hardening of 105 to 150; and is contained in an amount of not lower than 0.1% by weight, based on the epoxy resin (E); and

wherein the total chlorine amount of said master batch type hardener (F) for an epoxy resin is not higher than 2000 ppm.

6. (Original)

7. (Original)

8. (Proposed Amended) The microcapsule type hardener (D) according to claim 19, wherein the shell comprises a coating film (c1) yielded by a reaction between an isocyanate compound (H) and an active hydrogen compound (I) and/or a coating film (c2) yielded by a reaction between the amine hardener (C) and an epoxy resin (E); and

wherein the shell comprises a bonding group (x) absorbing infrared ray in a wave number region of 1630 to 1680 cm^{-1}, and a bonding group (y) absorbing infrared ray in a wave number region of 1680 to 1725 cm^{-1}, at least at the surface.

9. (Proposed Amended) An epoxy resin composition comprising 100 parts by mass of an epoxy resin and 0.1 to 100 parts by mass of an amine hardener selected from the group consisting of: the amine hardener (C) according to claim 1, the microcapsule type hardener (D) according to claim 19, the mater batch type hardener (F) according to claim 5, and the mater batch type hardener (F) according to claim 20.

10. (Proposed Amended) The epoxy resin composition according to claim 9 further comprising 1 to 200 parts by mass of at least one kind of a hardener (K) selected from the group consisting of acid anhydrides, phenols, hydrazides and guanidines, based on 100 parts by mass of said epoxy resin (E).

11. (Proposed Amended) The epoxy resin composition according to claim 9 further comprising a cyclic borate ester compound (L); and wherein the amine hardener is the microcapsule type hardener (D).

12. (Proposed Amended) The epoxy resin composition according to claim 11, wherein said cyclic borate ester compound (L) is 2, 2'-oxybis(5,5'- dimethyl- 1,3,2-dioxaborinane).

13. (Proposed Amendment) The epoxy resin composition according to claim 11, wherein the cyclic borate ester compound (L) is provided in 0.001 to 10 parts by mass, based on 100 parts by mass of said epoxy resin.

14. (Proposed Amendment) An anisotropic conductive material comprising the epoxy resin composition according to claim 9.

15. (Proposed Amendment) A film for bonding comprising the epoxy resin composition according to claim 9.

16. (Proposed Amendment) A paste for bonding a semiconductor comprising the epoxy resin composition according to claim 9.

17. (Proposed Amendment) A sealant comprising the epoxy resin composition according to claim 9.

18. (Proposed Amendment) A structural adhesive comprising the epoxy resin composition according to claim 9.

19. (Proposed New) A microcapsule type hardener (D) for an epoxy resin comprising a core and a shell;

wherein said core comprises the amine hardener (C) according to claim 1; and

wherein said shell contains a synthetic resin or an inorganic oxide.

20. (Proposed New) A mater batch type hardener (F) for an epoxy resin comprising: the amine hardener (C) according to claim 1, an epoxy resin (E), and a soluble epoxy resin (G);

wherein the highly soluble epoxy resin (G): has a solubility parameter of 8.900 to 12.00; has a molecular weight between crosslinked points after hardening of 105 to 150; and is contained in an amount of not lower than 0.1% by weight, based on the epoxy resin (E); and wherein the total chlorine amount of said master batch type hardener (F) for an epoxy resin is not higher than 2000 ppm.

Communication

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Feely whose telephone number is (571)272-1086. The examiner can normally be reached on M-F 8:30 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harold Y. Pyon can be reached on 571-272-1498. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Feely/
Primary Examiner, Art Unit 1796

March 1, 2010